To Achieve Abstraction

Abstraction

Abstract Class

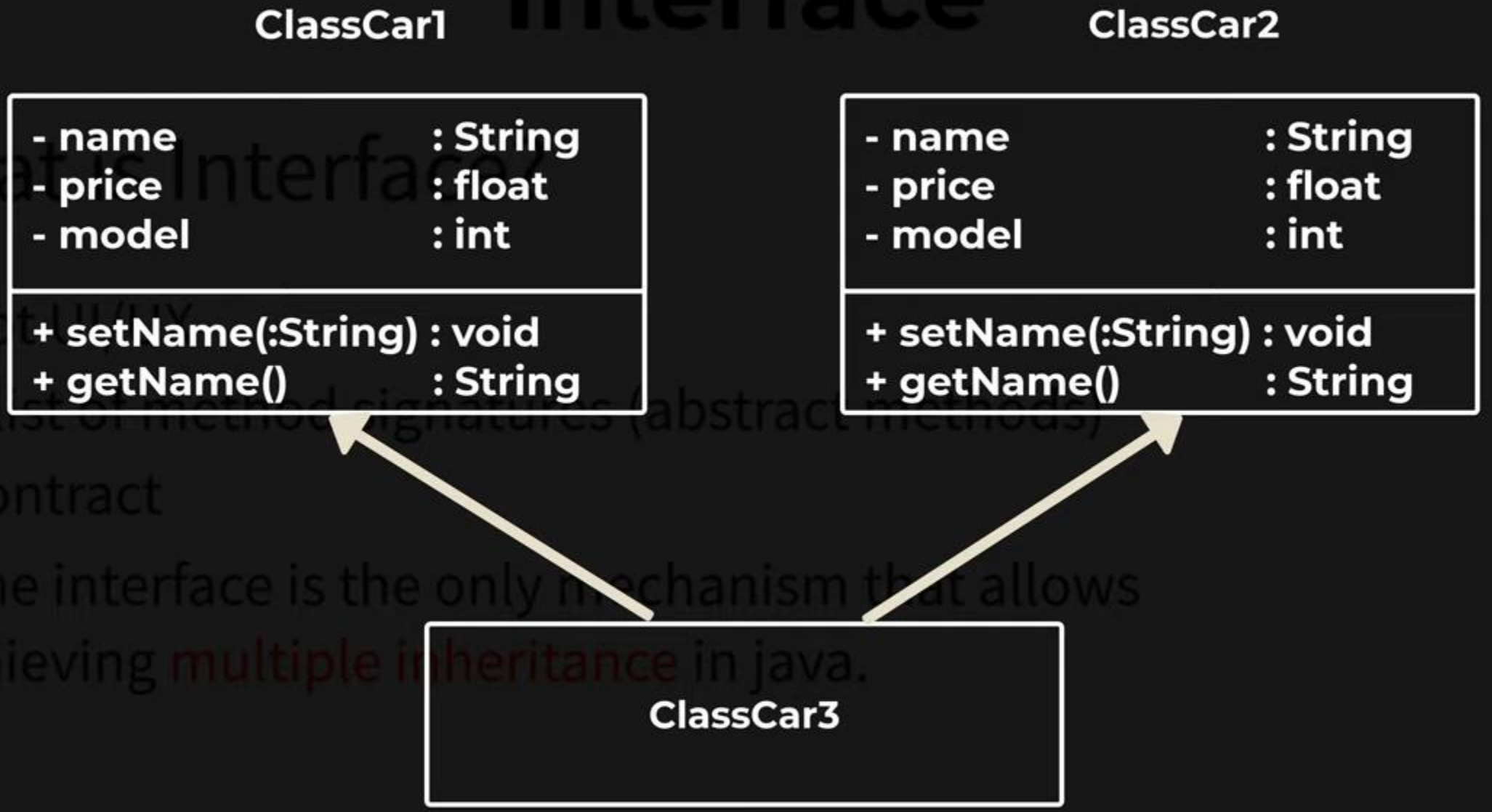
Interface

Interface

What is Interface?

- Not UI/UX
- A list of method signatures (abstract methods)
- Contract
- The interface is the only mechanism that allows achieving multiple inheritance in java.
- Class implements 1:M interface. Does not extend.
- Interface can achieve polymorphism

Interface



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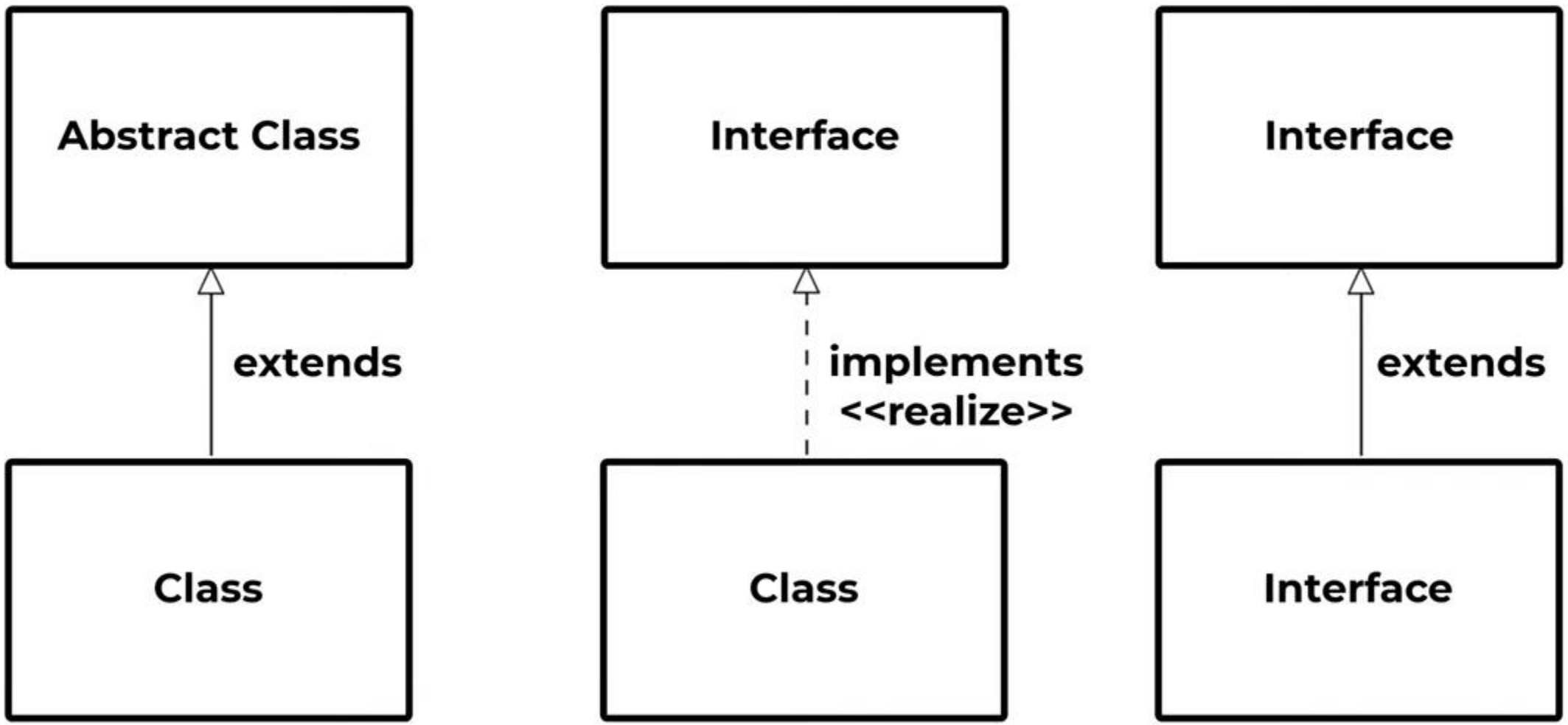

Abstract Class
extends
Class
Interface
implements
<<realize>>
Class
Interface
extends
Interface

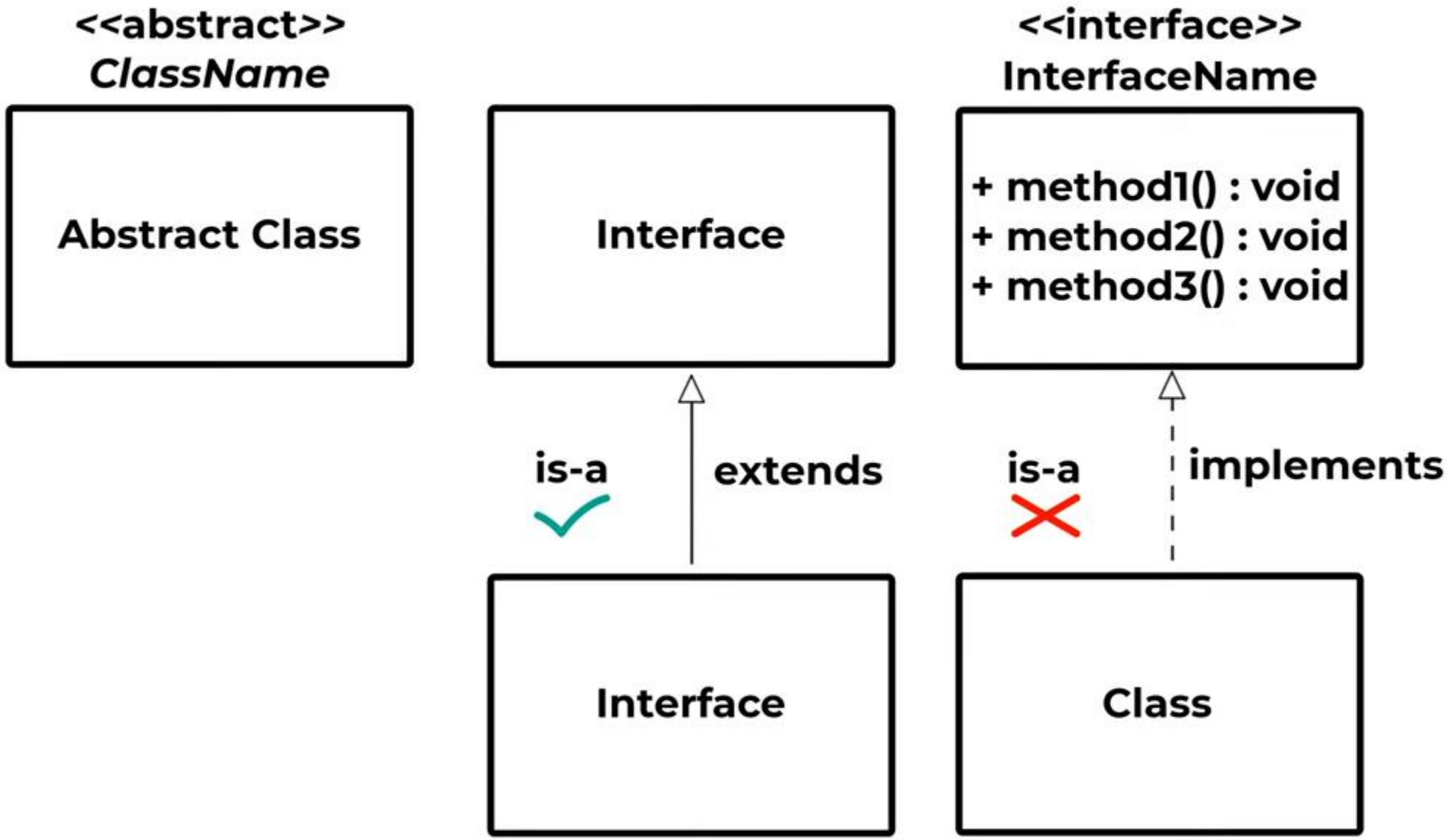
Interface

Realization: is a relationship between the **blueprint class** and the **object** containing its respective implementation level details.

Class

In other words, you can understand this as the relationship between the **interface** and the **implementing class**.

Interface


<<abstract>>
ClassName
Abstract Class
Interface
<<interface>>
InterfaceName
+ method1() : void
+ method2() : void
+ method3() : void
is-a
extends
is-a
implements
Interface
Class

Interface

Declaration

```
public abstract class ClassName{ }
public interface InterfaceName{ }
```

Interface

Declaration

```
public interface InterfaceName{
        void method1();
        void method2();
        void method3();
}
public class ClassName implements InterfaceName{
        @Override
        void method1() {..}

        @Override
        void method2(){..}

        @Override
        void method3(){..}
}
```

Interface

Automotive Manufacturing Software

the convention of giving a name to interface

Interface

Automotive Manufacturing Software

interface behind the scene

Movable

```
int maxSpeed = 250;

void move();
```

What you declare

```
public static final int maxSpeed = 250;

public abstract void move();
```

What the compiler sees

Interface

Which Java Types Can Implement Interfaces?

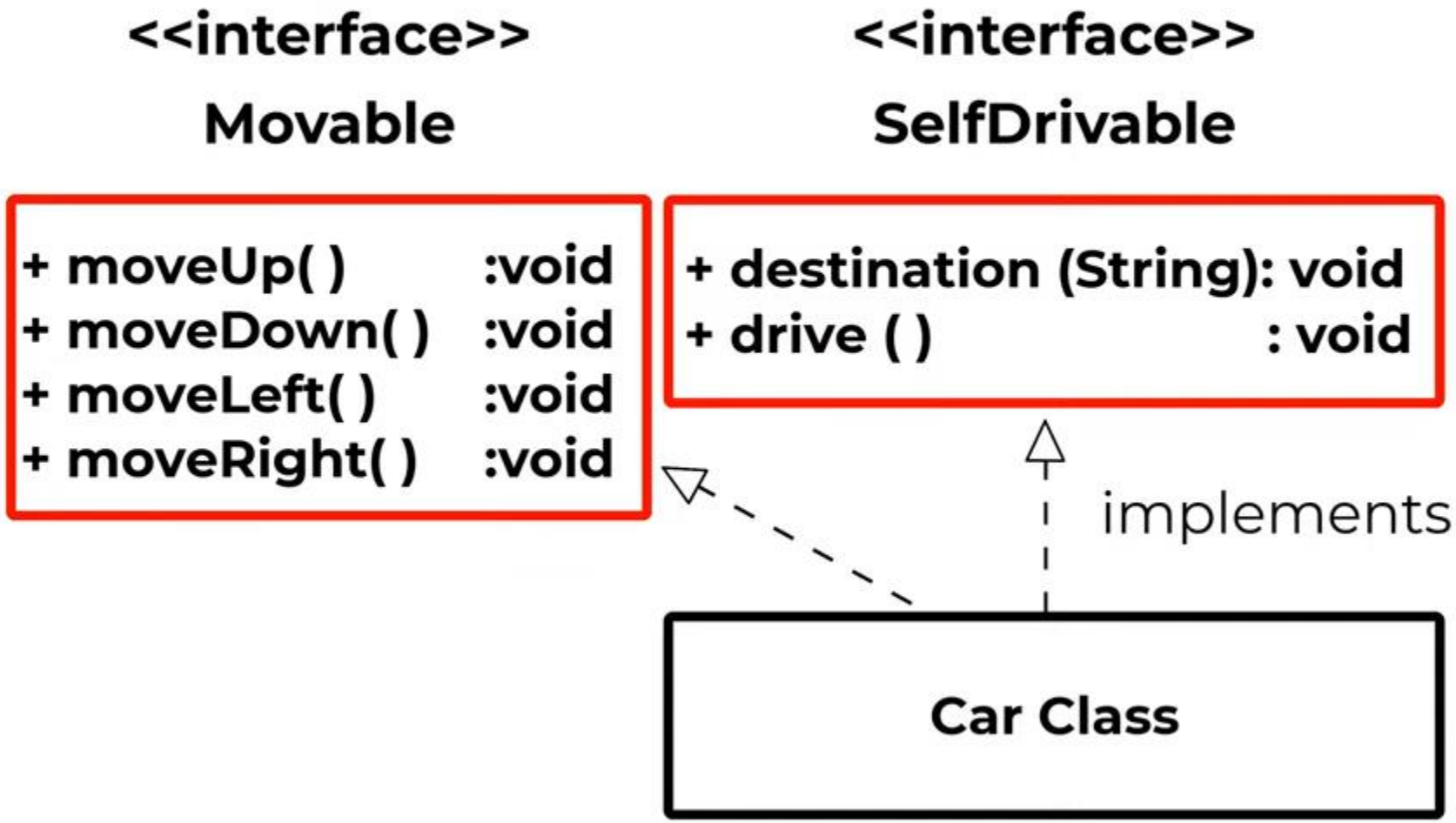
- Java Class
- Java Abstract Class
- Java Nested Class
- Java Enum
- Java Dynamic Proxy

Interface

Interface does not have constructors

Interface

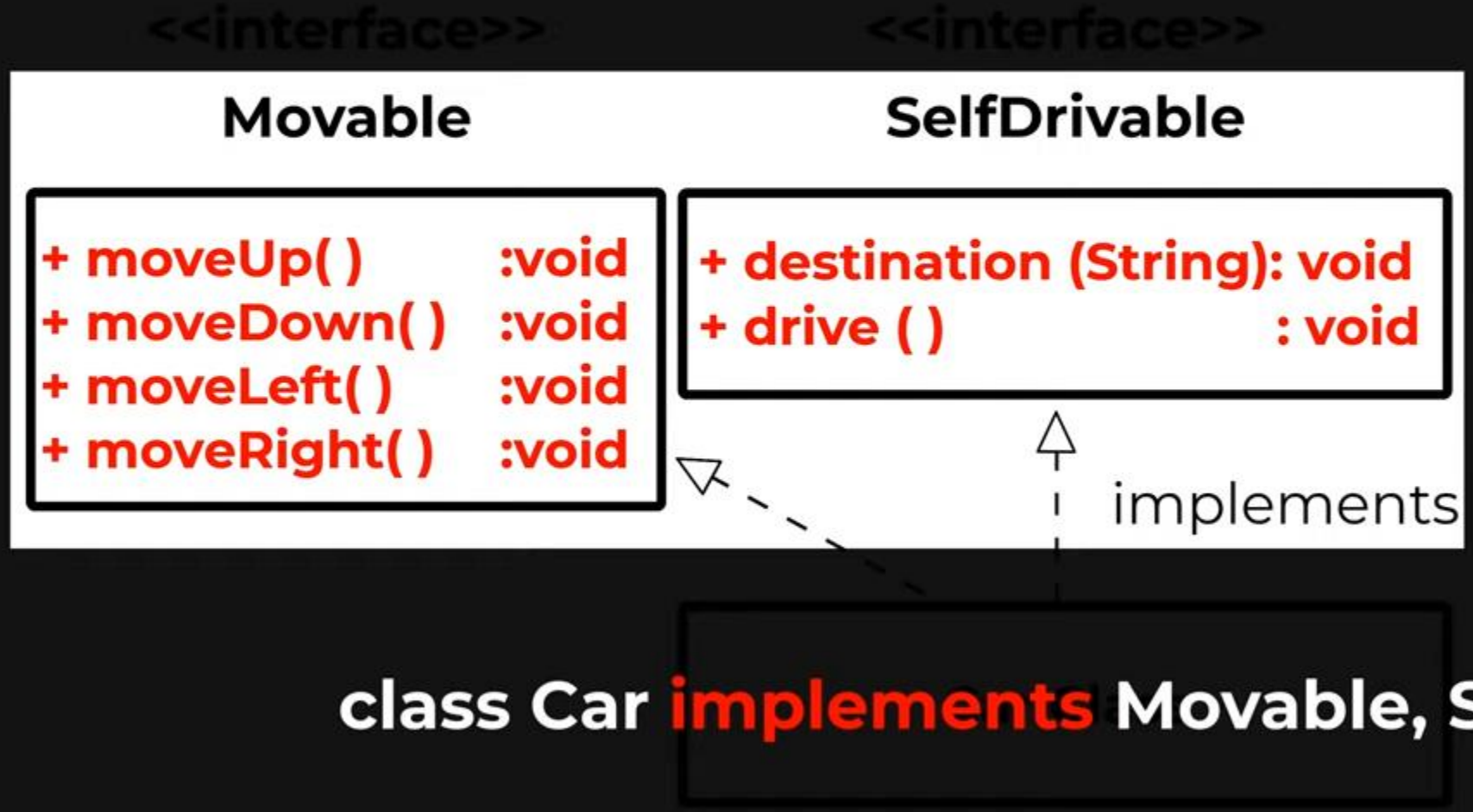
Automotive Manufacturing Software



Implements Multiple interfaces

Interface

Automotive Manufacturing Software

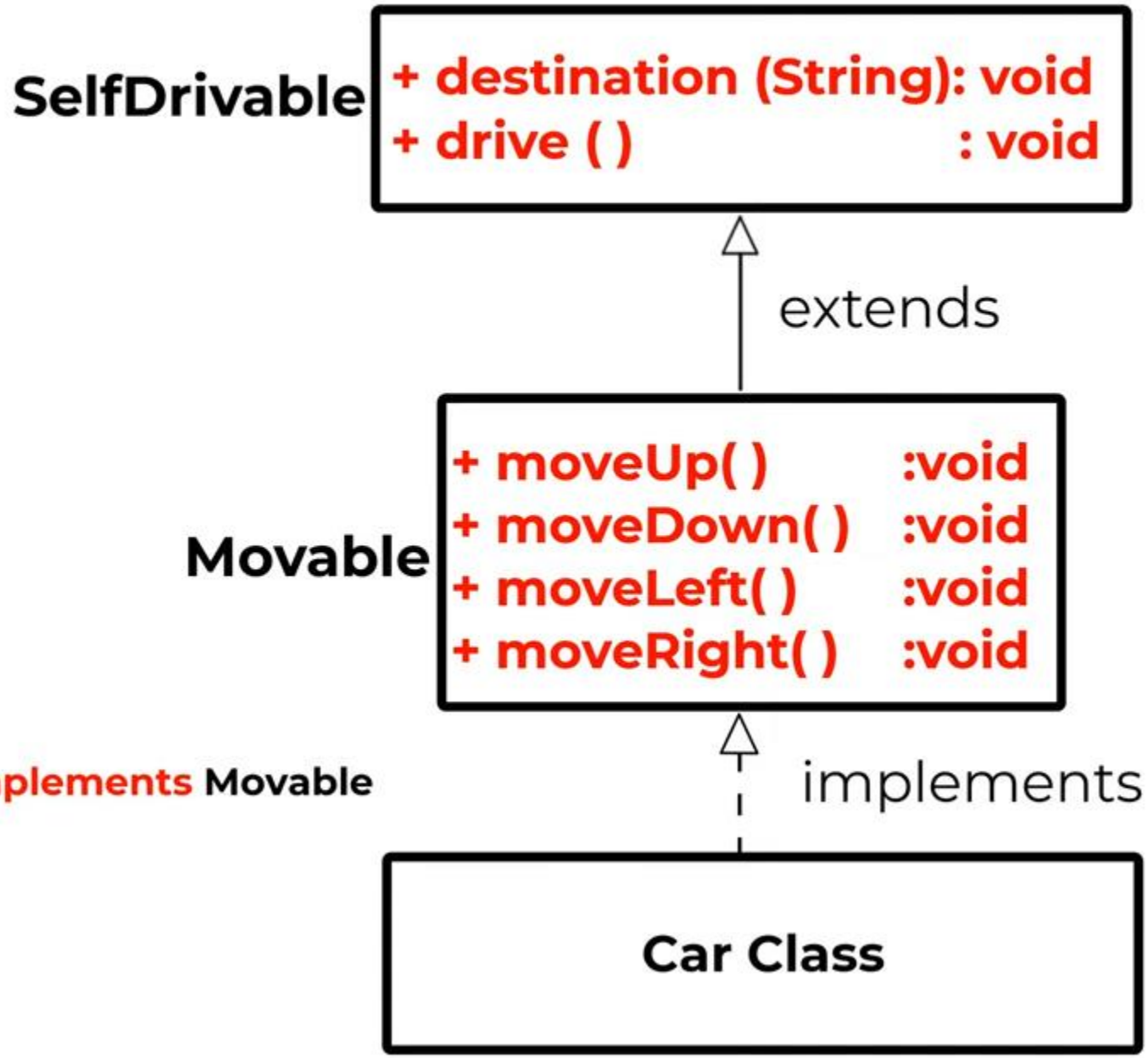


class Car implements Movable, SelfDrivable

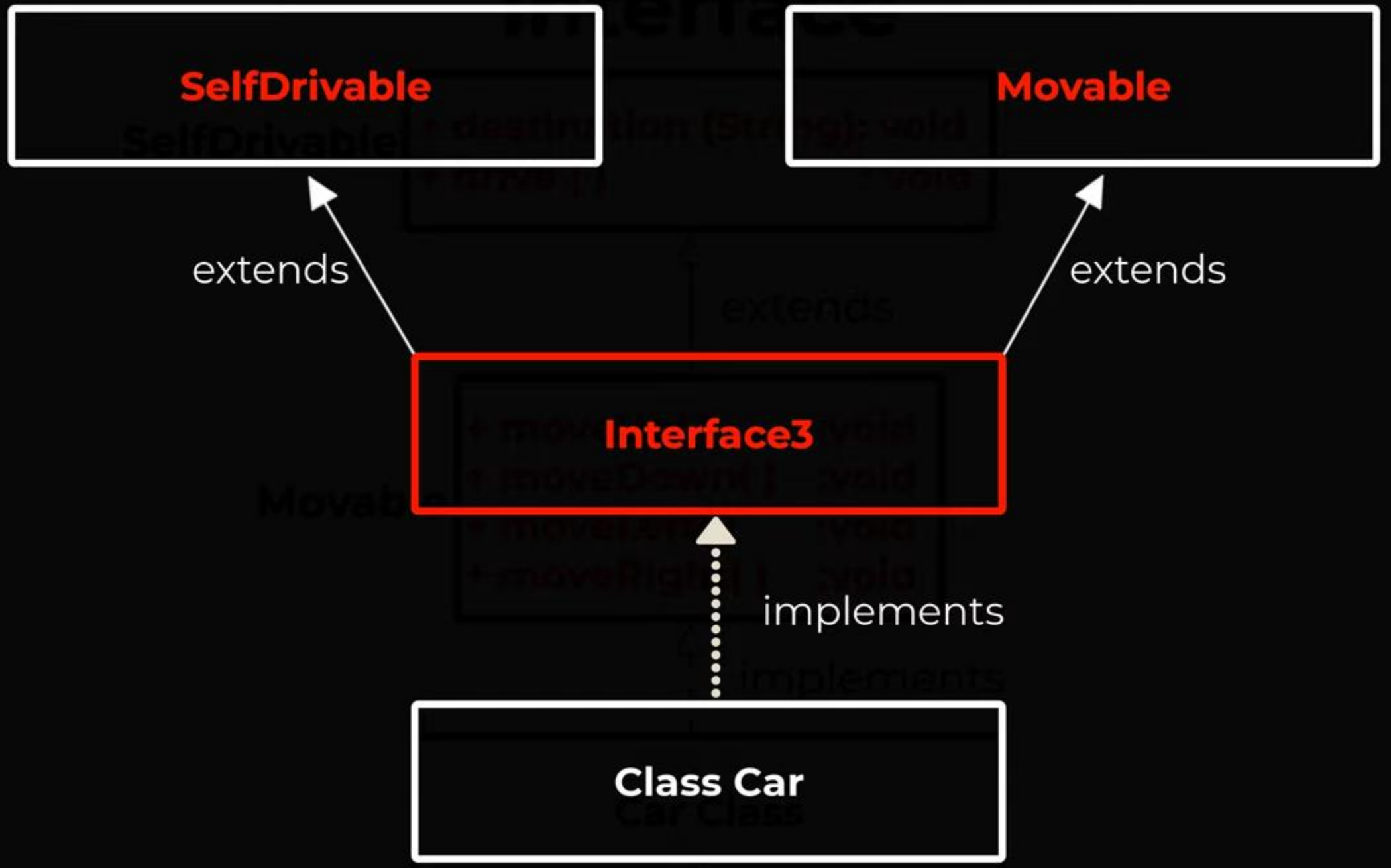
Interface can extend an interface,

and can also extend multiple interfaces

Interface



class Car implements Movable


SelfDrivable
Movable
extends
extends
Interface3
implements
Class Car